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# AIDS TO SURGERY.

BY

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## PREFACE TO THE SECOND EDITION.

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THE preparation of a Second Edition of these 'Aids' for the press affords a favourable opportunity of tendering my acknowledgments to numerous correspondents who have written to express appreciation of their value in assisting in the acquisition of a knowledge of elementary surgery. Direct testimony of this kind, together with that afforded by the rapid sale of a large Edition, convince me that the hope expressed in my Preface to the First Edition, viz., 'that this little work will be useful to those who are anxious to acquire knowledge,' has been to some extent realised.

G. B.

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*November, 1882.*

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# AIDS TO SURGERY.

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## 1.—ABSCCESS.

**Definition.**—An abscess is a *circumscribed* collection of pus contained within a layer of organised fibrinous exudation, and may occur in any of the soft tissues or in bone. The fibrinous exudation within which the pus is contained (when an abscess is fully developed) is called the *walls of the abscess*.

**Varieties.**—Abscesses are divided into two classes, *acute* and *chronic*. Different names are given to abscesses, according to the situation in which they occur; for example: alveolar abscess, lumbar abscess, mammary abscess, psoas abscess, etc. If an acute abscess occur in the subcutaneous cellular tissue it is called *phlegmon*.

**Symptoms.**—The *acute* variety is usually attended with severe constitutional disturbance. Locally, there is a sense of fulness, much pain and throbbing, heat, redness, and swelling, and, not unfrequently, the patient has shivering fits or rigors. At first the swelling is hard and tense, but as pus forms, it becomes soft, and *fluctuation* may be detected on making gentle pressure with the fingers. In the *chronic* form, the

constitutional disturbance is very slight, and the signs of inflammation, which are so marked in the acute variety, are absent. Hence they give rise to little distress, and are often unobserved until they become of large size. From the absence of heat and redness this variety is sometimes called *cold abscess*.

**Causes.**—Acute abscesses are generally idiopathic, but occasionally they are due to local irritation, or the presence of a foreign body. Chronic abscesses usually depend upon a scrofulous habit of body, or are due to chronic disease of bone. When occurring in scrofulous persons, the lymphatic glands are most commonly affected, especially those of the cervical region.

**Terminations.**—In rare cases the pus is absorbed, and the abscess entirely disappears. This is the least common, but most favourable termination. Generally the abscess “points” and bursts, discharging its contents. The walls of the abscess then contract, and the cavity gradually fills up by granulation, and heals over by cicatrization. Sometimes the external wound does not close, and a *sinus* remains. This is frequently the case with abscesses near the anus. When the pus is deep-seated, or bound down by dense fascia or periosteum, it is unable to “point” and discharge on the surface of the body. Then, unless the abscess is opened, the pus “burrows” between the soft tissues in the direction where least resistance is offered until it opens into a mucous passage, a serous cavity, or into a joint.

**Contents of an Abscess.**—The fluid contained in an abscess is called pus. This varies greatly in character. It may be (*a*), healthy or laudable ; (*b*), serous ; (*c*), sanious ; (*d*), ichorous ; (*e*), curdy ; or (*f*), putrid.

(*a*) *Healthy* pus is of a uniform creamy consistence,

and yellowish-white in colour, almost colourless, and generally of a slightly alkaline reaction. It consists of a thin transparent fluid (*liquor puris*) in which are suspended numerous globular corpuscles (*pus corpuscles*).

(b). *Serous pus* differs from the preceding in being more thin, and in containing fewer pus corpuscles. It indicates that the patient is in a low condition. This kind is often called *puriform fluid*.

(c). *Sanious pus*. Pus is said to be sanious when it is stained with blood.

(d). *Ichorous pus*. When the discharge from an abscess is very thin and acrid, it is said to be "ichorous."

(e) *Curdy pus* resembles the serous kind, but has floating in it white clots, and flakes of coagulated lymph.

(f) *Putrid pus* may resemble any of the other kinds in consistence and colour, but it has in addition an extremely fœtid odour, and a strongly alkaline reaction.

**Treatment.**—In the early stage of *acute* abscess, cold evaporating lotions or leeches may be applied locally, with a view to promote absorption. If absorption is not likely to take place, hot poultices and fomentations best promote the process of suppuration. The patient should be supported by means of generous diet, and his general condition attended to. When the abscess points and is likely to break, surgical interference is not necessary; but if the skin over the abscess is tough, or the matter is deep seated, a free incision must be made. Whenever "burrowing" is suspected, an opening to give exit to the pus should be made at once. When the abscess is due to local irritation, or to the presence of a foreign body, this should be removed if possible. In *chronic* abscess, it is generally a safe rule to delay the use of the knife as long as possible. With rest and constitutional

treatment, absorption often takes place. Chronic abscesses, especially those affecting lymphatic glands, frequently become absorbed after repeated applications of the tincture or liniment of iodine. After an abscess has been opened, the treatment consists in the application of poultices, or water dressing, frequently changed, and when it has ceased discharging it should be dressed with mildly stimulating ointments or lotions (zinc or lead), until the healing process is completed.

## II.—ALVEOLAR ABSCESS.

**Definition.**—A collection of pus around the apex of the fang of a tooth, between it and the membrane lining the socket.

**Symptoms.**—Extreme pain, with a throbbing sensation referred to some particular part of the jaw, usually corresponding to the situation of diseased teeth. Often there are rigors and great constitutional disturbance. The gum swells; the affected tooth is very tender to the touch, and imparts a sensation to the patient, when pressed upon, as if it were elevated above the level of the neighbouring teeth. In severe cases serous effusion takes place in the cancellated bone and surrounding soft tissues, giving rise to great swelling of the affected side of the face, causing closure of the eye and oedema of the eyelids. If the lower jaw is affected, the swelling often extends a considerable distance down the neck.

**Causes.**—Periodontal inflammation resulting from pre-existing diseased teeth, cold, or local irritation. Sometimes it arises from mechanical injury to a tooth.

**Terminations.**—When pus has formed, it tends to find an opening through the gum or around the neck of

the diseased tooth, forming a 'gumboil,' or the abscess may form fistulous openings on the face. If connected with the upper teeth the abscess may perforate the antrum, open into the nares, or on the face near the inner canthus or the lower border of the malar bone. If connected with the lower teeth the abscess may open externally above or below the margin of the jaw, and in some cases the matter has been known to pass down the neck, and even to find exit below the clavicle. Salter mentions a fatal case where the matter reached the armpit. If proper treatment be not adopted alveolar abscess may give rise to acute otitis of the jaw, followed by necrosis; in some cases this complication has resulted in pyæmia and death.

**Treatment.**—Saline purgatives should be freely given in the early stage, and blood abstracted locally, either by scarification or the application of leeches to the gum. The pain may be relieved by fomenting the face with hot decoction of poppies, or the decoction or hot water may be held in the mouth. Poultices should *not* be applied to the outside of the face. When pus has formed it should be evacuated as early as possible, either by extracting a diseased tooth or by making a longitudinal incision through the gum over the most prominent point of the swelling. In cases when the abscess does not open on the gum, instead of extracting a tooth, rhizodontropy may be performed.

### III.—ANAL ABSCESS.

**Definition.**—A collection of pus at or near the anus.

**Symptoms.**—Same as in abscess of other parts of the body.



**Causes.**—Generally obscure. May be the result of ulceration in the lower part of the rectum, within the sphincter. Sometimes it is due to the presence of a fish-bone or other foreign body in the rectum.

**Termination.**—May burst, and after discharging for a time, heal up. Generally, however, the external opening does not heal, and a fistula remains. If the abscess does not burst early, or is not opened, the pus may burrow beneath the skin, and sometimes it extends to the cellular tissue of the ischio-rectal fossa, giving rise to what is called an ischio-rectal abscess. If neglected, or an early opening is not made, phlegmonous inflammation of the perineum, scrotum, etc., may occur.

**Treatment.**—Before pus has formed, the usual treatment for abscesses, poultices, fomentations, etc., should be persevered with. As soon as fluctuation can be detected a free incision should be made. If the abscess is deep-seated in the ischio-rectal fossa, a free incision should be made early, before fluctuation can be detected.

#### IV.—PERINEAL OR URINARY ABSCESS.

**Definition.**—A collection of pus in the cellular tissue of the perineum in front of the anus.

**Causes and Symptoms.**—Perineal abscess is a consequence of long standing and neglected stricture of the urethra. Rarely it occurs as an ordinary abscess quite apart from stricture. When an organic stricture has existed for a long time, the urethra behind the stricture becomes much dilated, and after a time slight ulceration or laceration takes place, and a few drops of the urine escape into the cellular tissue, giving rise to inflammation and suppuration. On examination, a hard, circumscribed, and deep-seated



swelling may be found in the perineum, which is painful on pressure. Usually there are severe constitutional symptoms ; rigors, dry brown tongue, rapid pulse, and general fever.

**Treatment and Terminations.**—Should be opened in the median line of the perineum at once, and the contents evacuated. If stricture exists, this should be treated at the same time either by dilatation with a catheter which may be left in the bladder, or by dividing the stricture. This may be done by passing a grooved staff down the urethra as far as the abscess, and then cutting through the stricture by means of a scalpel introduced from the perineum. A large catheter may or may not be left in the bladder. In most cases it is sufficient to pass a catheter at regular intervals, three or four times a day. If not opened, the contents of the abscess will increase, and pass backwards to the neck of the bladder and cellular tissue of the pelvis, giving rise to extensive inflammation of the parts ; or it may be that the urethra will rupture from the patient straining to empty his bladder, allowing the urine to become extravasated. Perineal abscess and extravasation of urine often leave a urinary fistula, or *fistula in perineo*.

## V.—SPINAL ABSCESS.

*Psoas, Iliac, Lumbar, Gluteal, etc.*

**Definition and Causes.**—A collection of pus, arising from caries of some part of the spinal column. When disease of the vertebræ exists, the matter tends to find its way sooner or later to the surface of the body, and different names are given to the abscess according to the situation where the pus points. The most frequent situations where spinal abscesses point

are on the inner side of the upper part of the thigh—*psoas abscess*; just above Poupart's ligament—*iliac abscess*; in the loins—*lumbar abscess*; and the lower part of the gluteal region—*gluteal abscess*. When spinal abscess exists in either of these situations, it is generally connected with the lower dorsal or the lumbar vertebræ. Abscesses arising from disease of the cervical vertebræ usually point in the neck or in the pharynx. [NOTE.—Abscess *may* occur in any of the above situations from other causes than spinal disease.]

**Symptoms.**—Those of chronic abscess. *Vide* Aid I.

**Treatment.**—In the early stage the general health must be attended to, and strict rest enjoined. It is prudent to delay opening such abscesses, as the pus often becomes absorbed. If the abscess attains a large size, or the skin becomes red and threatens to break, the contents may be evacuated by means of the aspirator, or by a valvular incision. Some surgeons advise a free incision; in this case the antiseptic method of after-treatment as recommended by Professor Lister should be adopted.

## VI.—THECAL ABSCESS.

*Paronychia, Whitlow.*

**Definition and Causes.**—A collection of pus within the sheath of a tendon, most common in the fingers and toes, and arising from inflammation within the sheaths. The primary cause of the inflammation is generally a punctured wound; but occasionally the cause cannot be discovered. When the thecal inflammation affects the finger or fingers only, the affection is termed *paronychia* or *whitlow*. There is a milder and very common form of whitlow which affects only the skin and subcutaneous tissue.

**Symptoms.**—Heat, redness and swelling of the part with extreme pain and throbbing, and great constitutional disturbance. When the disease commences in the finger, it spreads rapidly up the hand and arm, and if prompt surgical treatment is not adopted, the hand and arm must sometimes be sacrificed in order to save the life of the patient.

**Treatment.**—The swollen and inflamed part must be opened early, even before suppuration has taken place, by means of a free and deep incision. Hot fomentations and linseed poultices to be used afterwards. The free incision gives speedy relief, as it relieves the tension on the sheaths and the deep fascia. Constitutional treatment must also be attended to, and opiates given, if necessary, to procure sleep.

## VII.—BOIL OR FURUNCLE.

**Definition.**—A local and circumscribed inflammation of the skin and subcutaneous tissue, accompanied by an effusion of lymph in the areolar tissue of the part and ending in suppuration and sloughing of a small extent of tissue. Bryant describes two kinds of boil; one ‘a subcutaneous swelling, attended with little pain until the skin over it inflames and suppurates; the conical-pointed swelling, with inflamed indurated areola, causing severe distress until the parts give way, when the feeling of tension and throbbing is followed by relief, due to the termination of the sloughing process and discharge of the “core.” When the slough has been discharged, an irregular orifice in the skin is seen covering in a cavity in the cellular tissue, which subsequently granulates leaving a depressed cicatrix.’ The second form begins as ‘an inflamed follicle or pimple, with a scarlet exquisitely sensitive areola. It suppurates slowly, occasionally becomes

vesicular, and, as a rule, terminates with a less well-marked slough than the former kind.'

**Causes.**—Frequently it is difficult to assign a cause for an outbreak of boils, but they sometimes depend upon a morbid condition of the blood from improper or insufficient food, excessive drinking, etc. Some persons appear to be predisposed to boils, and in such, slight local irritation is sufficient to produce them.

**Symptoms.**—Usual accompaniment of local inflammation, pain of a severe smarting character, heat, redness and swelling. At first the swelling is hard, but in a little time the central point becomes soft, bursts, and discharges as above described.

**Treatment.**—Locally the treatment should be directed to promoting suppuration of the boil by fomentations and poultices, and when it has burst or been lanced, stimulating ointments or lotions are to be applied to promote healthy granulations. At the same time, constitutional treatment is necessary. At first, aperients should generally be given followed by quinine, iron, or other tonics, with, perhaps, cod liver oil; nutritious diet to be taken, and plenty of out-door exercise, when the state of the patient permits. Sometimes entire change of air is necessary.

## VIII.—CARBUNCLE OR ANTHRAX.

**Definition.**—A local inflammation of the skin and cellular tissue, generally of the back, nape of neck or buttocks, similar to that associated with boils, but much more severe and extensive, and usually occurring in elderly and feeble persons. Often it is associated with diabetes and the gouty diathesis.

**Symptoms.**—Same as those of boil, but the pain is more severe and the constitutional depression



greater, and instead of breaking at one point, the carbuncle generally opens at many points, discharging a little thin fluid. After a time, generally some weeks, the whole of the affected skin and cellular tissue sloughs and separates, leaving a deep, irregular cavity undermining the neighbouring tissues.

**Treatment.**—Locally, deep crucial incisions followed by continuous poulticing, have been most commonly recommended, but some surgeons object to the use of the knife, and recommend the free application of caustic potash. The object aimed at is the same, viz. : the early separation of the slough. When the slough has been cast off, stimulating lotions or ointments are necessary to promote healthy granulations. Constitutional treatment must also be attended to ; tonics, liberal diet, good air, cleanliness, aperients when necessary, and opium when the pain prevents sleep.

## IX.—ANEURISM.

**Definition.**—A swelling or tumour, caused by the preternatural dilatation, or rupture of the coats of an artery, and communicating with the arterial canal.

**Varieties.**—When the sacculated dilatation involves all the coats of the artery, it is said to be *true*, and when the two inner coats have given way, and only the external one remains, it is said to be *false*. The distinction is not often made out in practice. Different names have been given to aneurisms, according to the forms they assume, as follows :—

(a) *Fusiform.*—When the whole calibre of the artery is involved in the dilatation.

(b) *Sacculated.*—When the dilatation involves a portion only of the calibre of the vessel.

(c) *Diffused or Consecutive.*—When all the coats of

the artery having ruptured, the sac is formed 'by the muscles and condensed tissue of the part into which the extravasated blood has been effused' (Bryant).

(*d*) *Dissecting*.—When the inner or inner and middle coats have given way, the blood finds its way between the coats of the artery.

**Symptoms.**—A tumour occurring in the course of an artery, soft, and generally *pulsating*; a thrill can often be detected, and on auscultation, a *bruit* can be heard. When the artery is compressed on the distal side, the tumour becomes tense. When firm pressure is made on the cardiac side, the tumour no longer pulsates, and the bruit ceases. On removal of the pressure, the tumour expands again immediately. In aneurism of the carotids, the circulation in the brain is interfered with, and there is giddiness. Often, the laryngeal nerves are pressed upon, and the voice becomes hoarse. In nearly all aneurisms, the patient complains of pain and local throbbing. When an aneurism has become partially consolidated, pulsation cannot be detected, diagnosis is then very difficult.

**Terminations.**—An aneurism may be cured spontaneously by distal occlusion. A clot of fibrin may be dislodged from the sac, and become arrested in the artery, on the distal side of the tumour. At first the clot may not entirely close the vessel, but fresh fibrin soon becomes deposited on the clot, and complete obstruction takes place. Spontaneous cure sometimes takes place from coagulation and consolidation of the contents of the sac, or from compression of the artery by the aneurism itself. Usually, the aneurism continues to increase in size, and causes absorption of all the tissues subject to its pressure. In this manner the sternum and bodies of the vertebræ often become absorbed. After a time the aneurism bursts, and



fatal hæmorrhage takes place. Sometimes the sac becomes inflamed, suppurates, and sloughs, and in other instances, a fatal result takes place from pressure on the trachea or œsophagus.

**Treatment.**—The first principle of treatment is to endeavour to induce coagulation in the sac, and to promote this, absolute rest in the recumbent position is essential. Diet should be restricted, according to Tufnell, to about eight ounces of solid and eight ounces of fluid food in twenty-four hours. Bleeding has been recommended to reduce the force of the circulation. All sources of excitement must be avoided. In all aneurisms that can be treated locally, surgical interference is necessary. The object of treatment is to diminish or arrest the circulation in the sac. This may be accomplished by compressing the artery above the tumour (*indirect* pressure), either by digital pressure or with the tourniquet, by compression of the aneurism itself (*direct* pressure), by the application of a ligature on the cardiac side of the aneurism (the Hunterian method); by compression or ligature of the artery on the distal side of the aneurism, or by cutting down on the aneurism and tying both ends of the artery. Electro-puncture, injection, and other methods of treatment, have been tried with indifferent success. In popliteal aneurism, flexion of the knee-joint arrests the circulation in the sac, and is a favourite mode of treatment.

## X.—TRAUMATIC ANEURISM.

**Definition.**—A pulsating tumour communicating with an arterial canal, not arising spontaneously, but following a punctured wound or rupture of the coats of the artery.

**Causes.**—Traumatic aneurisms generally arise in

the following manner: An artery having been wounded, pressure is applied to arrest hæmorrhage, and the wound ultimately heals. After a time, pressure being no longer kept up, the lymph which closed in the wound gives way, forming a sac which becomes distended with blood. Or a traumatic aneurism may be caused by unusual and sudden muscular exertion, such as straining the legs in lifting heavy weights or in wrestling. One or more coats of the artery may rupture in this manner, and an aneurism ensue.

**Symptoms.**—When a traumatic aneurism is encysted, its symptoms do not differ from those of spontaneous aneurism. If diffused, *i.e.*, the blood not contained in a sac, the case differs in no essential particular from ruptured artery. In the diffused variety pulsation is generally absent, and diagnosis is difficult. There is, however, a good deal of swelling, and, as a rule, the history of the case will assist the surgeon in forming a diagnosis.

**Terminations and Treatment.**—When encysted, same as in spontaneous aneurism. When diffused, the limb may be so distended with extravasated blood as to render it impossible to tell the situation of the injured vessel. In such a case the usual plan of cutting down and ligaturing the artery cannot be adopted. The limb is to be elevated, and cold applied; and it may be that nature will effect a cure; but should there be evidence that the circulation in the limb is arrested, the surgeon is justified in cutting down on the artery at the point where the history of the case indicates that it is wounded. When the main artery is ruptured, gangrene of the limb often follows, and amputation becomes necessary. Bryant lays down the following rules:—(1) That every aneurism, however caused, if encysted, is to be treated

upon like principles, and that ruptured traumatic aneurisms are to be regarded as ruptured arteries. (2) That the rupture of an artery, when bound down by dense fascia, such as the popliteal, is generally followed by complete arrest of all circulation in the limb, both arterial and venous, and, as a rule, requires to be treated by amputation, gangrene being otherwise the result. (3) That in cases of partial rupture there may be less extravasation, and, consequently, less severe measures may suffice; such as pressure upon the main trunk above, or if this fail, the application of a ligature. (4) That a ruptured artery in parts less fascia bound than the leg, as the arm, &c., may be treated more as in the case of arterial injuries, by the application of a ligature to the wounded vessel.

## XI.—ARTERIO-VENOUS ANEURISM.

(*Aneurismal Varix—Varicose Aneurism*).

**Definition.**—A dilated condition of a vein occurring at a point where a communication exists with a closely adjacent artery.

**Varieties.**—There are two varieties of arterio-venous aneurism. (1) The *aneurismal varix*, where the blood passes directly from the artery into the vein without an intervening sac, and (2) the *varicose aneurism*, where a sac exists between the two vessels through which the blood flows in its passage from the artery to the vein.

**Causes.**—May, it is said, arise spontaneously, but seldom occurs except as a consequence of an artery being wounded through a vein in the operation of venesection. Phlebotomy being now seldom performed, this lesion is rarely seen.

**Symptoms.**—The vein is enlarged and dilated,

pulsates or communicates a peculiar thrill to the touch, and at the point of junction of the arterial and venous streams a bruit can be heard on auscultation. In *aneurismal varix* the vein assumes in many respects the characters of an artery, becoming thickened, irregularly dilated and tortuous, and pulsation is very marked.

**Treatment.**—As neither form of arterio-venous aneurism gives rise to much pain, inconvenience, or danger, except in rare instances, surgical treatment is seldom necessary. If the disease is extensive or rupture of the vein is apprehended, pressure may be made on the *artery* with a view to induce occlusion. If compression fails, the *artery* may be cut down upon and ligatured. Nothing need be done to the affected vein as long as arterial communication is cut off.

## XII.—ANEURISM BY ANASTOMOSIS.— CIRSOID ANEURISM.

**Definition.**—A vascular pulsating tumour consisting of numerous dilated and elongated arteries.

**Varieties.**—This disease may involve either the smaller arteries and capillaries or the trunks of the large vessels. In the former case it is called aneurism by anastomosis, and in the latter the term cirroid aneurism is applied.

**Symptoms.**—The tumour is soft and pulsating, and can be emptied of its blood by pressure. The diseased vessels are dilated into pouches, tortuous and convoluted. Its most common situation is the scalp.

**Treatment.**—Aneurism by anastomosis is amenable to treatment by styptic injections, the application of the galvano-cautery or ligature of the vessels con-



verging towards the growth. The injection of styptics is, however, not unattended with danger, as embolism may ensue. Sometimes good results follow direct pressure, but removal by excision is the most certain method of cure. In cirroid aneurism the best treatment is removal by means of subcutaneous ligature of the diseased growth.

### XIII.—ANKYLOSIS.

**Definition.**—An affection of a joint characterised by partial or entire loss of motion.

**Varieties and Causes.**—There are two kinds of ankylosis, *ligamentous* or *fibrous*, and *osseous*. The former is a result of inflammation in the joint affecting the cartilages and synovial membrane only, and the latter results when the inflammation has proceeded to suppuration, and disease has attacked the ends of the bones entering into the formation of the joint, which ultimately grow together, forming a complete stiff joint. Stiffening of a joint sometimes results from fibrous adhesions in the soft parts outside the joint.

**Treatment.**—As ankylosis is the natural result of a disease, and the best that can be hoped for in many cases, no treatment is necessary unless the limb is fixed in a bad position so as to be of little or no use to the patient. In fibrous ankylosis forcible flexion under chloroform, and passive movement afterwards, may restore the joint in some measure; but in the osseous variety forcible flexion is useless. Formerly, nothing was done in such cases unless the case was so bad as to render amputation of the limb advisable; but of late years excellent results have been obtained, especially in ankylosis of the hip-joint, by subcutaneous section of the bone, either with a fine saw or a

chisel. In hip-joint ankylosis, if the femur is divided through the neck, the limb can be at once fixed in a useful position, and in good subjects recovery is almost certain, although some deaths have been recorded after this operation.

#### XIV.—ARTHRITIS.

**Definition.**—Inflammation of the structures which enter into the composition of a joint.

**Varieties.**—There are two kinds of arthritis, *acute* and *chronic*. The term is often used in connection with another and quite distinct form of disease, viz :—*Osteo-arthritis*, to be considered hereafter. When the inflammation is confined to the synovial sac of the joint, the affection is termed *synovitis*.

**Causes.**—The cause is, in a large number of cases, very obscure. At times the disease can be traced to local injury ; it may be a blow, sprain, twist, or wound ; but in a large number of cases the disease comes on insidiously and without any apparent cause. In these latter cases the patients are generally badly fed, and of unhealthy constitutions. Often the disease is decidedly of tubercular or scrofulous origin, or associated with rheumatism or gout.

**Symptoms.**—These differ according to the form of disease. In the *acute* variety there is much pain in the joint, which is aggravated on the slightest movement ; the part is hot and speedily becomes swollen, from effusion into the joint, as indicated by fluctuation, and occasionally there is redness of the skin. There is always great constitutional disturbance, high fever, thirst, loss of appetite, sleeplessness ; or if the patient sleeps, he often starts up suddenly from shooting pains in the joints. In the *chronic* form, pain is the



first symptom ; but it is far less acute, being described as of a dull, aching character, and often mistaken for 'growing pains' or rheumatism. The pain is increased on firm pressure. Swelling is a late symptom, and does not take place as a rule until some weeks, or, it may be, months, after the pain is first observed. There is also an absence of fluctuation in the early stage of the disease.

**Pathology.**—Few questions have given rise to so much dispute among surgeons as the inflammatory diseases of joints, and the literature of the subject is so vast that it is impossible to enter fully into its discussion here ; the student is therefore recommended to consult text-books for the views of the various surgical authorities. This much is admitted, that whether the disease is acute or chronic, it generally commences either in the synovial membrane or in the bone, and subsequently affects the cartilages and ligaments. If it commences in the synovial membrane, the morbid process may show itself either by change of function or change of structure. In the former case the pathological condition is excessive secretion, as indicated by swelling and fluctuation. Under early and proper treatment the secretion may be absorbed without permanent injury to the joint, but in other and more active cases, the synovial membrane becomes thickened and velvety in appearance ; ulceration or sloughing follows, with suppuration in the joint. The articular cartilages also ulcerate, and the bone beneath becomes affected in a similar manner. When change of structure is the chief manifestation, the disease is generally of a sub-acute or chronic character. In these cases the synovial membrane becomes thickened by infiltration of inflammatory product in its walls or upon its surface, ultimately becoming gelatiniform or pulpy. As in the acute form, the cartilages become affected second-

arily ; the affection, in these instances, generally assuming the form of granular degeneration, and involving their entire surfaces. In the early stage of the disease, the granular appearance may not be visible to the naked eye, but in its advanced stage the cartilage presents a worm-eaten appearance, and often it becomes detached from the bone. When the inflammation commences in the articular extremity it becomes enlarged in consequence of the cells of the cancellated structure being expanded with inflammatory deposit. In some cases the inflammation subsides, the deposit becomes organised, and cure results without any actual disease of the joint manifesting itself ; but in other cases the inflammation proceeds to suppuration ; an abscess forms in the epiphysis, which generally bursts into the joint, the cartilages and synovial membrane become affected, and disorganisation of the joint ensues.

**Treatment.**—The first indication of treatment in all cases of joint disease, whether acute or chronic, is perfect rest, which may be secured by fixing the affected limb on a splint. In the acute form, the application of leeches and hot fomentations generally gives marked relief. Opium or other sedatives should be given internally, and some surgeons advocate the administration of calomel. In the chronic form, blisters, strapping, the application of starch bandages, Scott's ointment, and iodine paint have each been advocated, and may each be tried in succession. Constitutional treatment should not be neglected ; iron, quinine and cod-liver oil are the most serviceable remedies. In case of suppuration the joint should be laid open, and the wound treated antiseptically. When the disease has proceeded thus far, recovery with ankylosis which will be fibrous or bony according as to whether the suppuration is the consequence

of synovial disease, or of articular ostitis, is the best result that can be hoped for (*vide* XIII.). In many cases it becomes a question whether the joint shall be excised or the limb amputated, but at times it may suffice to remove the diseased portion of the ends of the bones. The special treatment of arthritis affecting particular joints cannot be discussed here.

## XV.—BALANITIS.

**Definition.**—An inflammatory affection of the surface of the glans penis, and inner surface of the prepuce, accompanied by profuse discharge of purulent matter.

**Causes.**—Generally, this affection is a consequence of gonorrhœa, but it may arise, in the case of those in whom the prepuce is abnormally long from neglecting to keep the parts clean, or from contact with unhealthy secretions in the female.

**Symptoms.**—As in other local inflammatory affections, the chief symptoms are pain, heat, redness, and swelling. There is also a profuse purulent or muco-purulent discharge, and frequently the surface of the glans and the mucous surface of the prepuce are excoriated. If neglected or improperly treated, the prepuce becomes œdematous, and the condition known as phimosis occurs.

**Treatment.**—The parts to be kept enveloped in lint, saturated with astringent lotion, such as the acetate of lead lotion, or sulphate of zinc and alum. Or they may be painted with solution of nitrate of silver, five grains to the ounce. They are also to be kept very clean by frequent bathing with warm water, and the injection of warm water, or weak zinc or lead lotion, under the foreskin. The administration of saline aperients, or alkalies, generally expedites the

cure. Phimosis requires operative treatment, either slitting up of the prepuce, or circumcision. The latter operation usually gives better results than the former.

## XVI.—BRONCHOCELE, OR GOÎTRE.

**Definition.**—Simple enlargement, or hypertrophy of the thyroid gland. The term goître is often applied to cystic and other diseases of the gland, but strictly it should be applied only to that form of disease which is known in this country as Derbyshire neck.

**Causes.**—This disease is believed to arise from drinking water impregnated with lime or magnesia, as it is seldom met with except in districts where the water is freely charged with one or other of these salts, chiefly the former. It is said also to arise from uterine derangement, but this is not at all clear. The disease is, however, most common in females who are about the age of puberty.

**Characters and Symptoms.**—Beyond the swelling, this disease rarely gives rise to any particular symptoms unless the tumour becomes of great size. There is then difficult and harsh respiration, cough, feeling of fulness in the head, in consequence of pressure on the trachea and large vessels, and sometimes difficulty in swallowing. The swelling generally affects both lateral lobes, but sometimes only one is affected, and occasionally the enlargement is wholly confined to the isthmus. The tumour is soft, elastic, and there is an absence of fluctuation. If there is fluctuation, the disease is probably cystic. In swallowing, the tumour is seen to rise and fall with the trachea.

**Treatment.**—In young people the disease is generally curable by attending to the general health, and abstaining from water contaminated by inorganic



impurities. The best medicines are iodides of iron and potassium, quinine and cod-liver oil. External applications of iodine are useful, and the patient should take plenty of out-door exercise. Injecting the tumour with iodine has been tried with success. In some cases the pressure on the larynx is so great that life is endangered, it is then necessary to extirpate the gland if it is found that the particular case admits of this being done with reasonable hope of success. The operation has been successfully performed by many surgeons, but it is attended with great danger on account of the proximity of the great vessels of the neck.

## XVII.—BUBO, OR ADENOPATHY.

**Definition.**—An enlarged and inflamed condition of the lymphatic glands in the groin, whether situated above or below Poupart's ligament.

**Causes and Varieties.**—The affection to which the term bubo is applied, is a result of some form of venereal disease, and is due to absorption of pus. There are three varieties of bubo. The 'sympathetic bubo,' which arises from gonorrhœa; the 'suppurating bubo,' a result of soft chancre, and the 'indolent bubo,' which usually arises from hard chancre.

**Symptoms.**—Heat and swelling of affected glands with severe pain, which is aggravated on pressure or on attempting to walk. The pain is much less acute in the indolent variety.

**Results.**—If the bubo arises from a simple suppurating syphilitic sore, the gland almost invariably suppurates, and does not heal up until after free discharge. In 'sympathetic' bubo, if treatment be adopted early, the inflammation may subside without

proceeding to suppuration. Indolent bubo rarely suppurates unless the patient is in a very low and feeble state, or sympathetic action is excited by local irritation or over exercise. After suppuration, the edges of the sore sometimes ulcerate and enlarge considerably. Rarely the sore puts on phagedænic action and spreads to an alarming extent.

**Treatment.**—In all cases of bubo, rest is essential. In ‘sympathetic’ bubo, fomentations, or the application of leeches, usually give great relief. Sometimes the local application of ice, lead, or evaporating lotions, or of iodine, or the inunction of mercurial ointment, relieves pain, and prevents suppuration. In ‘indolent’ bubo pressure by means of a pad and spica bandage promotes absorption. In the case of ‘suppurating’ bubo, hot poultices and fomentations must be applied, and as soon as fluctuation can be detected, the pus should be allowed to discharge through a free incision. After sloughing, if indurated glands are exposed, these may be removed by the scalpel. Sinuses should always be laid open. In case of phagedæna, nitric acid, or other caustics must be applied locally. Constitutional treatment should be attended to, tonics and generous diet being indicated.

## XVIII.—BURNS AND SCALDS.

**Definition.**—A *burn* is an injury to the body, arising from the application of extreme heat, either by means of a solid body or actual fire. A *scald* is a similar injury, arising from the application of heated liquids or vapours.

**Varieties.**—Six *degrees* of injury, arising from the application of heat to the body, are recognised by surgeons.



- 1st. When the skin is merely scorched, causing redness and tenderness only.
- 2nd. When the heat has been so intense as to raise a blister, with effusion of serum beneath the cuticle.
- 3rd. When the superficial layer of the true skin has been destroyed. The vesicles, in this case, contain a blood-stained or brown fluid.
- 4th. When the whole thickness of the skin has been destroyed, together with some portion of the subcutaneous cellular tissue, forming a hard, dry, and insensible eschar. The superficial tissues having been destroyed, there are no vesicles in this instance, except, perhaps, on the skin surrounding the eschar.
- 5th. When in addition to skin and cellular tissue, the deep structures, muscles, fasciæ, vessels, etc., are destroyed, forming a black, charred mass.
- 6th. When the whole thickness of a limb, including the bone, is implicated.

**Results.**—Burns and scalds, if severe, are very dangerous to life, especially in the case of children or old persons. The danger of a fatal result is to be estimated by the extent of surface involved, rather than by the degree of the injury. A severe burn of limited extent is far less dangerous than an extensive burn or scald of the first degree. If half the body is implicated a fatal result is almost certain. Death may result from shock or collapse within forty-eight hours, or from intensity of inflammation in the stage of reaction from the third to the fourteenth day, the inflammation generally attacking some internal organ. Or the patient may die of exhaustion or pyæmia during the suppurative stage. Erysipelas, pyæmia, tetanus, inflammation of the lungs, peritonitis, ulceration of

the duodenum and cerebral congestion are among the complications arising from severe and extensive burns or scalds. If the patient escapes or survives these complications, the injured surface heals by granulation and cicatrization. When the whole thickness of the skin is destroyed, the cicatricial tissue gradually contracts, giving rise in many cases to great deformity. This is especially liable to take place after burns about the face and neck and flexions of the limbs.

**Treatment.**—In slight cases the application of water dressing, lead-lotion, flour, collodion, or chalk-and-water give speedy relief. The latter is an excellent remedy. When the skin has been blistered, the blisters should be punctured, and the fluid allowed to escape. The injured part should be carefully excluded from the air by the application of lint and carron-oil or zinc ointment. Or the part may be dusted over with flour. Later carbolic oil (1 in 20), as recommended by Lister, is a good stimulating application to promote separation of the sloughs. Calamine, resin, and creosote ointments are also recommended. Sloughs should be cut away as they separate. In severe burns great attention must be paid to the case during the healing stage in order to prevent contraction of the parts. This may be prevented by keeping up extension during the whole period of granulation and cicatrization. Extensive skin-grafting has been recommended and practised with this object, and with excellent results. In burns of the fifth and sixth stages amputation of a limb may be necessary. Great attention must be paid to constitutional treatment, the relief of pain, and a nutritious diet exhibited. Complications must be treated on general principles as they arise.

## XIX. —BURSITIS.

**Definition.**—Inflammation, either acute or chronic, of a bursa mucosa.

**Causes.**—The most common cause of bursitis is pressure; occasionally it arises from a blow or local irritation. Sometimes no cause can be made out.

**Symptoms.**—Pain, which is increased on pressure, is usually the first symptom. Crepitation on pressure is also an early sign. After a little time effusion takes place, causing a circumscribed fluctuating swelling. The amount of effusion depends on the severity of the inflammation.

**Diagnosis.**—This affection is seldom difficult to diagnose, if the history of the case is made out, and the situation of bursæ liable to inflammation is remembered. The most commonly affected bursæ are those of the patellæ (housemaid's knee), generally due to pressure from much kneeling. Other bursæ liable to inflammation are those over the olecranon process (from leaning on the elbow), the acromion process (from carrying heavy weights on the shoulder), and the ball of the great toe (from wearing tight boots), in the latter case forming 'bunion.' When the deep bursæ are affected, diagnosis is more difficult. The deep bursæ liable to inflammation are: the bursa beneath the deltoid muscle (simulating shoulder-joint disease); the large bursa beneath the extensor muscles of the thigh (simulating disease of knee-joint); the bursa beneath the ligamentum patellæ (also simulating disease of knee-joint); that between the tendon of the gluteus maximus and trochanter major; that beneath the tendon of the psoas muscle and those beneath the tendons of the hamstring muscles.

**Treatment.**—In the early stage of effusion and in

cases not of long standing, rest, removal of pressure, and the application of blisters, often cause absorption and affect a cure. Painting with iodine is sometimes useful. If these fail, tapping and subsequent pressure may be tried, or the cyst may be injected with iodine, or a seton passed through it and kept in until suppuration is established. When the bursa contains effused blood, or pus, a free incision should be made. In chronic cases when the bursa becomes as it were a cyst, with solid or almost solid contents, excision is the only cure.

## XX.—CANCERUM ORIS, OR GANGRENOUS STOMATITIS.

**Definition.**—Phagedænic ulceration or sloughing of the cheek or lip.

**Causes.**—Sometimes occurs as a result of one of the eruptive fevers, or of salivation, but often no exciting cause can be made out. In most cases ill-feeding and neglect are doubtless the chief factors in its origin.

**Symptoms, etc.**—This disease commences as a phlegmonous inflammation of the cellular tissues of the cheek or lip. The part affected becomes hard and swollen, and very soon sloughs. The sloughing spreads very rapidly, and in many cases destroys a large portion of the cheek, the lips, and gums, and, in extreme cases, destroying a portion of the jawbone. There is profuse salivation, and discharge of foetid, sanious fluid.

**Prognosis.**—A very fatal disease, the patient usually dying from exhaustion, or from hæmorrhage, through sloughing of an artery.

**Treatment.**—Tonics and liberal diet, eggs, beef-tea, milk, wine, etc. The affected parts to be kept



very clean, and washed with Condyl's fluid or other disinfectant. In the early stage fomentations are useful, but when sloughing is going on the actual cautery, or strong nitric acid, should be freely applied, the patient being placed under chloroform.

## XXI.—APHTHOUS OR ULCERATIVE STOMATITIS.

**Definition.**—A disease of the mouth usually met with in children, and characterised by aphthous ulceration of the tongue, gums, lips, and cheeks.

**Causes.**—Generally obscure, but in most cases it is probably due to bad feeding and neglect. Sometimes it arises from irritating substances being kept in the mouth, sucking poisonous wall-paper, etc.

**Diagnosis.**—This disease resembles, and is often mistaken for, cancrum oris. It is, however, much less virulent, and more amenable to treatment. It begins as an ulceration of the mucous membrane, whilst in cancrum oris the disease begins in the cellular tissue, and the mucous membrane, or skin, does not slough until afterwards.

**Treatment.**—Aperients to be given at first, and afterwards chlorate of potash and tonics, with milk and beef-tea diet. The mouth to be frequently washed or brushed out with lotion of chlorate of potash, one or two drachms to a pint. If the ulceration assumes a phagedænic form, a liberal allowance of wine should be given, and caustics may be applied as in cancrum oris.

## XXII.—COMPRESSION OF THE BRAIN.

**Definition.**—The term used by surgeons to indicate that condition which results from the pressure of some substance upon the brain.



**Causes.**—Compression of the brain may arise from various causes, but the chief are :

- (a) *Depressed Bone*, resulting from simple or compound fracture of the skull.
- (b) *Extravasation of blood* within the cranium, arising from rupture of some one or more of the inter-cranial vessels.
- (c) *Inflammatory effusion*, either into the brain or between its membranes.
- (d) *Formation of pus* between the skull and the dura mater.

**Symptoms.**—These may come on at once, or be very gradual in their onset. If due to depression of bone, symptoms of compression occur almost immediately, if to extravasation of blood, a short space of time intervenes between the accident and onset of symptoms ; if to inflammatory effusion, the symptoms may not be evident for some days, and then develop gradually ; and if due to formation of pus, the symptoms may not come on for some weeks after the accident. The chief symptoms are, insensibility, generally complete, and in some cases amounting to profound stupor or coma ; slow, difficult, and in bad cases stertorous, breathing, each respiration being accompanied by a puffing movement of the muscles of the face ; pulse slow and full ; retina insensible to light, the pupils immobile, and generally dilated, sometimes unequally so ; paralysis, either partial or general ; loss of power of deglutition ; inability to retain fæces, and loss of power of micturition, giving rise to retention of urine.

**Terminations.**—Compression of the brain, although a very grave event, is not necessarily fatal, even when associated with fracture and depression of the vault of the cranium. The prognosis depends greatly on the amount of injury to the brain substance. If severe

and general, a fatal termination is the rule; death taking place by coma. A patient may recover from the primary effects of compression due to a blow or a fall on the head, and die afterwards from secondary inflammation and softening of the brain. In compression from extravasation of blood into the arachnoid, the clot may become organised, forming an 'arachnoid cyst,' recovery following. In compression from depressed bone, the brain may itself raise the depressed bone gradually, or it may accommodate itself to the pressure, and recovery follow. If trephining has been successful in relieving the symptoms of compression, a permanent cure may result. Patients recover very slowly in even the most favourable cases.

**Treatment.**—In a large number of cases the injury to the head is so severe and general, that surgical interference is out of the question; but when it is known, or the symptoms indicate, that the injury is a *local* one, surgical treatment may be called for. In all cases the head may be shaved and ice-bag applied; the patient kept at rest in the horizontal position, and as quiet as possible. The diet to be light and nourishing, without stimulants. Free purgation is necessary, and to effect this, calomel in large doses is generally given. If the injury is local, trephining may be necessary, and is called for in cases of depressed fracture (simple or compound), with severe or persistent symptoms of compression; also in cases where it can be made out that the symptoms are due to extravasation of blood, or the presence of pus between the cranium and the dura mater. In compression with compound comminuted fracture, the pieces must be elevated or removed. Retention of urine to be relieved by means of the catheter.

### XXIII.—CONCUSSION OF THE BRAIN.

**Definition.**—The term used to indicate that condition of disturbance of the cerebral functions which results from a severe blow on the head or sudden shock to the brain.

**Symptoms.**—Immediately on receiving a blow sufficiently violent to cause concussion of the brain, the person becomes insensible and loses all muscular power; if standing, he falls to the ground senseless and motionless; in common parlance, he is ‘stunned.’ The surface of the body becomes cold and pale, features contracted, pulse small, slow and intermittent, pupils generally contracted, or one may be dilated and the other contracted, respiration at first slow and laboured, afterwards irregular and sighing.

**Diagnosis.**—The diagnosis between concussion and compression is easy enough in well-marked cases, but often the symptoms are so obscure and complicated that it is almost impossible at first to determine the exact nature of the case. Not unfrequently the case is clearly one of concussion at first, but, as soon as reaction sets in, symptoms of compression develop themselves, in consequence of cerebral hæmorrhage. The following are the chief points which enable one to diagnose the nature of the case :

#### CONCUSSION.

1. Insensibility always takes place immediately on receipt of injury.

2. Breathing difficult, intermittent, sometimes sighing, but never stertorous.

3. Pulse sometimes quick, small and thready, and intermittent.

4. Pupils generally contracted.

#### COMPRESSION.

Insensibility, although sometimes present from the first, generally comes on gradually.

Breathing slow and laborious, sometimes stertorous and accompanied with “puffing” movement of cheeks and lips.

Pulse slow, full and bounding, easily compressible.

Pupils generally dilated.

## CONCUSSION.

5. Skin sensitive to prick of pin, or to pinching.

6. Surface of body cold and pale.

7. Patient can be roused so as to answer questions.

8. Vomiting and retching are very common symptoms.

## COMPRESSION.

Sensation of skin lost.

Surface of body warm, and moist, and of natural colour.

Patient cannot be roused.

Vomiting and retching absent.

**Terminations.**—In slight cases the patient soon recovers consciousness and the use of his limbs, and it may be within a few minutes will appear as if nothing had happened. In other cases the return to consciousness is slow, and occurs only after a well-marked stage of reaction; the skin becomes warm and assumes its natural appearance, the features are no longer contracted, the pulse becomes more regular, forcible, and rapid; often vomiting, which is a most favourable sign, comes on; muscular power returns, and the patient speedily gets well, although for some days he may feel dull and heavy, and quite unfit for bodily or mental exertion. In severe cases there is some contusion (bruising) of the brain, and occasionally the brain substance is lacerated, together with more or less extravasation of blood. Recovery may follow contusion of the brain with slight effusion; but if the hæmorrhage is extensive, symptoms of compression come on, and the case generally terminates fatally. Cases have been recorded where a person has died instantaneously from concussion (through arrest of the heart's action), but most of the fatal cases result from the secondary effects, such as inflammation of the brain or its membranes, extravasation of blood, and suppuration. Insanity and paralysis have, it is said, followed apparently slight concussion of the brain several weeks, and even months, after the primary effects have passed away.



**Treatment.**—Patient to be kept in bed until convalescent; surface of body to be rubbed, and stimulants should be avoided. When reaction has set in, the patient must be closely watched and kept very quiet lest inflammation follow. Diet to be very plain, and mercurial or saline purgatives given, until the bowels have acted freely. In strong plethoric people some blood may be taken with advantage. Complications must be treated as they arise, on general principles.

#### XXIV.—CLUB-FOOT (*Kyllosis* or *Talipes*).

**Definition.**—A distorted condition of the foot, either congenital or acquired.

**Varieties.**—There are four principal varieties of club-foot, viz. :—

- (a) *Talipes calcaneus*, in which the front part and sole of the foot are drawn upwards, and the patient can place only the back part of the heel on the ground.
- (b) *Talipes equinus*, in which the heel is raised, and the patient can place only the ball of the foot on the ground.
- (c) *Talipes valgus*, in which the foot is turned out, and the patient walks on the inner side.
- (d) *Talipes varus*, in which the foot is drawn inwards, and the inner edge of the foot drawn upwards, so that the patient walks on the outer side.

There are also combinations of the above forms, as *talipes equino-valgus* (heel drawn upwards and foot turned outwards); *talipes equino-varus* (heel drawn upwards and foot turned inwards); *talipes calcaneo-valgus* (heel depressed and foot turned outwards); and *talipes calcaneo-varus* (heel depressed and foot



turned inwards). Talipes varus is the most common congenital form.

**Causes.**—Whether congenital or acquired, club-foot arises from tonic or spasmodic contraction of some muscle or muscles acting on the foot, or from paralysis of some muscle or group of muscles, in consequence of which the opposing muscle (or muscles) loses antagonism, and acts uncontrolled.

**Treatment.**—The indications for treatment are to overcome the shortening of the muscles and tendons on the contracted side of the distorted foot, and to give strength to those on the opposite side. In mild cases, and in very young infants, friction, properly directed manual extension, daily practised, may suffice for a cure; but in severer forms, extension by strapping or the application of a splint is necessary, whilst in the most severe forms division of the shortened tendon or tendons by the operation of tenotomy must be performed previous to the application of extension by means of some mechanical appliance. Various kinds of apparatus have been devised by ingenious orthopædic practitioners for the cure of club-foot, all based on the same principle, and designed to fulfil the same objects, viz., to cause extension of the contracted structures, and to afford support to those which are relaxed or elongated. When tenotomy is necessary the following tendons are generally selected in the various forms of distortion :—For talipes calcaneus, those of the tibialis anticus, extensor longus digitorum, and sometimes the peroneus tertius; for talipes equinus, the tendo-Achillis; for talipes valgus, the tendons of the long and short peronei muscles; for talipes varus, those of the tibialis anticus and posticus, and sometimes the tendo-Achillis in addition to the two tibials.

## XXV.—ECTROPION, OR ECTROPIUM.

**Definition.**—Eversion of the eyelid, so as to give rise to constant exposure, to a greater or less extent, of the eyeball.

**Causes.**—Contraction of cicatrices, arising from burns, wounds, or abscesses in the neighbourhood of the orbit ; also dropping of the lower lid as a consequence of paralysis. Slight ectropion also results, occasionally, from severe inflammation and thickening of the conjunctiva.

**Treatment.**—The only cure is by means of an operation. Slight cases may be cured by removing a portion of the redundant and thickened conjunctiva ; in other cases it is necessary to narrow the palpebral orifice by removing a V-shaped portion of the lid, or by paring the edges of the lids at the outer canthus, and bringing the raw surfaces together by means of a suture, so that union may take place. If there has been much destruction of the tissue forming the eyelids, the deficiency should be made up by bringing a flap of skin from a neighbouring part.

## XXVI.—ENTROPION, OR ENTROPIUM.

**Definition.**—Inversion of the eyelid.

**Causes.**—Spasmodic contraction of the orbicularis muscle, and distortion and thickening of the tarsal cartilage, which sometimes result from granular ophthalmia. The same condition may arise from the contraction of a cicatrix in the conjunctiva.

**Treatment.**—If due to contraction of the orbicularis, a narrow piece of the skin of the lid parallel to the ciliary margin should be removed, then the muscle to be exposed and a corresponding piece removed. If due to distortion and thickening of the tarsal car-

tilage, a wedge-shaped piece of this structure must be removed.

## XXVII.—ENCEPHALOCELE.

**Definition.**—An abnormal condition of the head, in which a portion of the brain protrudes through the skull, forming an elastic tumour.

**Causes.**—This condition is met with in infants as a congenital affection, and is due to deficiency of the bones of the skull, or some portion thereof.

**Treatment.**—These cases should, as a rule, be left to nature. Most surgeons would be content to diagnose such a condition.

## XXVIII.—EPULIS.

**Definition.**—A tumour of a fibrous or fibro-plastic nature, arising from the gum, the periodontal membrane, or the alveolar process, or it may be from some portion of one of the bones of the jaw.

**Causes.**—Little can be said as to the causes of these tumours. They probably arise from some local irritation, such as that caused by a diseased fang of a tooth remaining in the jaw.

**Characters.**—A true epulis tumour consists of a hard dense mass, made up of fibrous tissue and myeloid cells, which usually grows from the edge of the alveolar process, between two standing teeth, and most frequently on the labial or buccal side of the gum. It grows very slowly and may vary in size, from that of a pea to that of a walnut, and in some cases it is even much larger. They give rise to little pain, and do not bleed very readily. The surface of the tumour has the same appearance as that of the gum.

**Treatment.**—The only treatment is entire extirpation with the knife, together with the portion of alveo-

lar process or bone from which it springs. Sometimes it is also necessary to remove some of the adjacent teeth.

## XXIX.—ERYSIPELAS.

**Definition.**—A specific disease characterised by local inflammation of the skin or of the skin and cellular tissue, and having a strong tendency to spread.

**Varieties.**—Surgeons recognise three varieties of erysipelas, viz. :—

- (a) *Simple cutaneous erysipelas*, in which there is diffused inflammation of the skin, the deeper tissues being scarcely, if at all, affected.
- (b) *Cellulo-cutaneous or phlegmonous erysipelas*, in which both the skin and subjacent cellular tissue are attacked.
- (c) *Cellular erysipelas*, in which the inflammation is confined to the planes of cellular tissue, the skin being unaffected.

When the disease arises spontaneously it is called ‘idiopathic,’ and when it follows an injury it is called ‘traumatic.’

**Causes.**—Erysipelas is said to arise from the introduction of some morbid material into the blood ; being, in fact, dependent upon blood-poisoning. It is both infectious and contagious. It generally attacks those who are out of health from irregularities as regards mode of living—intemperance and inattention to cleanliness. Some persons appear to be predisposed to the disease, and get an attack on the least exposure to cold or other slight exciting cause. Wounds and injuries are the most frequent exciting causes of erysipelas, especially when these occur in persons who are in a low, debilitated state.

**Symptoms.**—The local manifestations are generally



preceded by severe constitutional disturbance. At first there may be chilliness and rigors, headache and nausea, often followed by vomiting and high fever. The tongue is thickly furred, and generally the bowels are constipated. The local symptoms are: in the cutaneous variety, redness of the skin, which disappears on pressure, returning immediately on the pressure being removed, burning sensations in the part affected; there is some swelling, and the skin feels raised and thickened when contrasted with the neighbouring unaffected parts. Occasionally vesicles containing serous or sero-purulent fluid form on the skin, and if the part attacked contains much loose cellular tissue, as in the scrotum or eyelids, it becomes œdematous. In the cellulocutaneous variety, the local symptoms are much more severe, both the skin and cellular tissue being intensely inflamed. From the first the part feels more solid than is natural; it pits on pressure, but as the cellular tissue becomes more infiltrated with inflammatory products, the skin feels tight from tension, and ceases to pit on pressure. The patient complains of intense pain and a burning or throbbing sensation. The constitutional disturbance is also much more severe. In cellular erysipelas, or *cellulitis*, as it is generally and more properly termed, the cellular tissue, instead of the skin, is primarily attacked. There is diffused swelling and induration of the cellular tissue, the inflammation spreading rapidly in the planes thereof. The tissues feel brawny and the skin tense. After a time suppuration takes place, the skin sloughs, and extensive destruction of tissue follows.

**Course and Terminations.**—Simple uncomplicated erysipelas generally runs its course in from ten to fourteen days, the inflammation increasing for the first few days (about four), after which it declines, the



redness and swelling diminish, and the skin desquamates. This mode of termination is the most favourable, and is termed 'resolution.' In other cases, large vesicles or 'bullæ,' containing serum, form on the surface. These dry into scabs, and after a time peel off. Occasionally simple erysipelas is followed by suppuration, forming small local abscesses. In phlegmonous and cellular erysipelas, suppuration is very common, and sloughing of the skin and cellular tissue takes place, sometimes to an alarming extent. In many cases the disease terminates fatally. If the disease attacks a wound, secretion in the part is arrested, the wound, if nearly healed, reopens and generally ulcerates. With the severer forms of erysipelas, internal complications of an inflammatory type and very fatal character often occur.

**Prognosis.**—Favourable in simple erysipelas, except in old and feeble patients, or those suffering from organic disease of the kidneys, or other internal organs. Phlegmonous and cellular erysipelas is at all times very serious, and the prognosis should be guarded. The probability of a fatal issue depends, in a great measure, on the amount of constitutional disturbance and fever.

**Treatment.**—In simple erysipelas, the first indication is to clear out the bowels. Afterwards, perchloride of iron, may be given either with or without small doses of sulphate of magnesia, according to the state of the bowels and evacuations. If there is much prostration, ammonia and bark, with a liberal allowance of stimulants, are necessary. In all cases, nourishing liquid diet should be given, such as essence of beef, soups, milk, and milk with the yolk of eggs. As to local treatment, no absolute rule for all cases can be laid down. Some do well with cold lotions constantly applied; but, generally, warm applications, such as poppy-head or chamomile fomentations, answer

best. Dusting the part over with flour, so as to exclude the air, is a good plan; and painting the parts over with collodion or solution of nitrate of silver is also recommended. In the cellulo-cutaneous form of the disease, free incisions should be made through the skin, so as to relieve the tension and to allow the serum effused in the cellular tissue to escape. In case of suppuration and sloughing, matter must be let out at once, and the parts well fomented. In bad cases of sloughing erysipelas of the limbs, amputation may be necessary in order to save life.

### XXX.—ERYTHEMA.

**Definition.**—An affection of the skin characterised by local hyperæmia or superficial redness, closely resembling simple cutaneous erysipelas, and attended with more or less swelling and itching.

**Varieties.**—Different names have been given to this disease, according to the form which it assumes. Thus, there are :—

- (a) *Erythema simplex*, when there is merely simple vascular congestion of the skin, with little or no swelling.
- (b) *Erythema fugax*, when the local red patches are very transient, and change their situation suddenly, as though by metastasis. There is more swelling and itching of the part in this than in the simple variety. This form generally appears on the face or body, and usually arises from some irritation of the digestive organs.
- (c) *Erythema papulatum* or *tuberculatum*, when the redness takes the form of small patches or clusters of papules or tubercles. These generally appear on the hands or fingers.

- (d) *Erythema intertrigo*, when the redness is due to the friction of two folds of skin, and the irritation of moist secretions.
- (e) *Erythema annulare*, when the redness assumes the form of a ring.
- (f) *Erythema iris*, when there is a central red spot or small ring within a larger ring, or, it may be, several rings arranged in a concentric manner.
- (g) *Erythema circinatum* or *gyratum*, when there are a number of rings of erythema which meet and cross each other, forming irregular figures consisting of broken segments of circles. [*e*, *f*, *g* are only different stages of the same disease.]
- (h) *Erythema nodosum* (see Aid XXXI.)

In addition to the above the terms *erythema læve* and *erythema pernio* are used, the former to describe the redness occasionally seen on the hot and tense skin of œdematous legs, and the latter the redness of an unbroken chilblain. Other names have been introduced by dermatologists, but they serve only to confuse the student.

**Causes.**—Simple erythema frequently arises from local causes, such as heat, injury, or irritation. In other cases the cause must be looked for in some disturbance of the digestive, nutritive, or uterine functions, general debility, or in some constitutional state of a febrile character.

**Treatment.**—The local heat and irritation of erythema is generally relieved by soothing applications, such as benzoated oxide of zinc ointment, lead cerate, or lead lotion. Internally, mild purgatives and salines, and subsequently, bitter tonics with the mineral acids.

In chronic cases arsenic is valuable, and in females it is often necessary to give aloes and iron in order to regulate the uterine functions.

### XXXI. ERYTHEMA NODOSUM.\*

**Definition.**—As its name implies, this disease is characterised by red and hard or knot-like swellings, which usually appear on the front of the legs, the swelling being due to circumscribed inflammation of the skin and subcutaneous cellular tissue.

**Clinical Phenomena.**—For two or three days before the eruption appears the patient complains of weakness, loss of appetite, and aching pain of the legs. There is generally feverishness, the temperature sometimes rising two or three degrees; white furred tongue, gastric disturbance, and inability to sleep. The pain of the legs increases, and often the patient is quite unable to walk or even stand. The pain is said to resemble that of acute rheumatism. On examining the legs, one or two, or, it may be several, red spots will be seen, sometimes round, but generally oval or oblong, and almost always on the front aspect over the shin. The spots vary in size from half an inch to an inch, or it may be two inches, in diameter. The spots are hot, painful, very tender, and hard to the touch, the induration extending deeply into the tissues. The spots are at first of a bright red, but in a few days

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\* This affection is considered separately, as it bears little or no resemblance to the ordinary forms of erythema. Although usually classed as a surgical disease, it appears to have greater claim to be classed among medical diseases. Certainly, the constitutional disturbance in well-marked cases of this affection is out of all proportion to the local manifestation. In many cases which have come under the author's notice, the clinical features have closely resembled some of the exanthemata.



they change to a purplish hue, and finally become greenish or yellow, disappearing entirely in about ten or twelve days. Rarely similar spots appear on other parts of the body. It is not contagious, but sometimes two or three members of a family will be attacked at the same time.

**Causes.**—Little appears to be known as to the cause of this peculiar affection. It is met with both in old and young of both sexes, but it is most frequently seen in females. In women it is generally associated with disordered menstruation or the climacteric period. In some cases it appears to be due to unwholesome food, or drinking water contaminated with organic filth. Impure drink or food should be suspected as the cause when several members of the same family are simultaneously suffering from the disease.

**Treatment.**—In the early stage mild purgatives and effervescing salines should be given, and after the feverishness has subsided, a mineral acid with a vegetable bitter. The diet should be light and nourishing. Cases depending on uterine derangement require special treatment.

## XXXII.—EXOSTOSIS, OR BONY TUMOUR.

**Definition.**—A tumour growing from and attached to the surface of a bone, in structure either identical with, or closely resembling, the bone from which it springs.

**Causes.**—Little can be said as to the cause of these outgrowths. Often their origin cannot be traced. Occasionally they are said to result from a blow or continued pressure on the bone.

**Characters, Situation, etc.**—These tumours are



hard, immovable, slow in growth, and painless unless they happen to press on nerves, blood-vessels, or sensitive parts. Generally they are globular, with narrow peduncle, but they may be pointed or curved at the summit, with a broad base of attachment. They may arise from any bone, but their most common sites of origin are the end of the ungual phalanx of the great toe, and near the junction of the shaft and epiphysis of long bones, generally of tibia and femur. When they arise from the cranial bones they are usually very hard and dense, like ivory, and hence are called *ivory exostoses*. Occasionally a diffused bony mass is found arising from the periosteum, to which the name *periosteal exostosis* has been given. In this case the tumour is simply the result of local periostitis, the organized inflammatory products having undergone ossification. Rarely, loose bony tumours are formed in the sinuses of the bones of the skull. These are appropriately termed 'enostoses' by Bryant. It is impossible to diagnose these cases unless the tumour makes its way to the surface by absorption. The internal surface of the cranium is also subject to exostoses. When such exist the growths press on the brain, and sometimes give rise to epileptic fits.

**Treatment.**—In the early stage the administration of iodide of potash and the external application of iodine or mercurial ointments have been recommended, with a view to promote absorption, but, as a rule, such measures serve only to amuse the patient. The only treatment likely to effect a cure is removal of the entire growth. This is done by cutting down on the tumour, freeing the soft parts and then breaking or cutting off the tumour level with the surface of the bone by means of a chisel or gouge. When, as in some cases of cranial exostosis, the whole cannot be

removed, cut off as much as possible, and the remainder may subsequently exfoliate. As some risk attends these operations, they should not be hastily performed, or unless the tumour gives rise to much inconvenience.

### XXXIII.—FISSURE AND ULCER OF ANUS.

**Definition.**—A crack or ulcer of variable extent in the mucous membrane of the anus, generally commencing at its junction with the skin, and extending upwards a greater or less distance towards the *internal* sphincter.

**Causes.**—Said to be caused by sedentary habits, habitual constipation, and the passage of large and hardened stools. Frequently fissures and ulcers will be found to be associated with piles ; indeed, hæmorrhoids are probably the most common cause of fissure.

**Symptoms.**—The chief symptom is pain on defæcation, of a most acute character, often continuing for many hours. Generally the pain commences at the time of the passage of fæces, but occasionally it does not come on until some minutes afterwards. Often the fæces are streaked with blood, and if the ulcer is a large one, or the fissure deep, there will be considerable bleeding each time the bowel acts. There is usually frequent spasm of the sphincter, accompanied by intense pain. When the above symptoms exist, fissure or ulcer should always be suspected, but an examination must be made to confirm the diagnosis. Sometimes fissures and ulcers are multiple.

**Treatment.**—Laxatives must be given to soften the fæces and prevent straining at stool. Or injections of warm water may be administered for the same purpose. The local application of nitrate of silver or strong carbolic acid often effects a cure in simple cases

without cutting, but in severe cases, or when the ulcer is deep or large, it will be necessary to make an incision through the fissure, or base of the ulcer, so as to divide the fibres of the external sphincter. This relieves the pain immediately. As the operation is a very painful one, a little ether or chloroform should be given. The after treatment is simple—rest, attention to diet and the state of the bowels, being the chief points.

#### XXXIV.—FISTULA IN ANO.

**Definition.**—The name given to the sinus in the neighbourhood of the anus or lower part of the rectum, which usually remains unhealed after anal abscess.

**Varieties.**—Fistulæ in ano are of three kinds :

- (a) *Blind internal* ; when there is an opening into the lower part of the rectum, but no external opening.
- (b) *Blind external* ; when there is an external opening, but no communication with the bowel.
- (c) *Complete* ; when both an internal and external opening exists.

**Treatment.**—The best and most satisfactory treatment is division by means of the knife of all tissues superficial to the sinus, the incision to extend from the external opening—when it exists—into the bowel. A *blind internal* fistula should be converted into a *complete* fistula by passing a bent probe into the opening in the rectum, and allowing it to pass along the sinus as far as possible, and when the point of the probe can be made out to cut down upon from the external surface. A *blind external* fistula is readily converted into a complete fistula by passing the probe—

pointed director, at the time of operating, into the sinus, and forcing it through the bowel. Some surgeons recommend division of the tissues by means of an elastic ligature, a plan which may be adopted when the patient will not submit to the knife. Another substitute for the knife is the galvanic cautery and a metallic wire, by which the tissues can be readily divided. Operations in this part being always very painful, it is generally advisable to give chloroform or ether. Much care is needed in the after treatment to see that the wound does not close in at the surface before the deeper parts have healed. The horizontal position must be maintained until the cure is complete.

### XXXV.—FISTULA IN PERINÆO, OR URINARY FISTULA.

**Definition.**—An opening from the perineum or parts closely adjacent into the urethra, which permits the urine to pass through it during micturition.

**Causes.**—Generally arises from extravasation of urine or the bursting of a urinary abscess in the perineum or scrotum. Sometimes it results from a wound in the perineum or urethra, whether produced accidentally or by the surgeon's knife, as in the operation for lithotomy.

**Treatment.**—If, as generally happens, the affection is associated with stricture of the urethra, the stricture must be kept fully dilated, so as to allow the urine to flow readily through the urethra. If the fistula does not heal after dilatation of the stricture, local stimulation is necessary, such as may be obtained by the application of the actual or galvanic cautery or



nitrate of silver. When the fistula will not heal in consequence of the urine finding its way into it each time the patient micturates, he should be instructed to pass a full-sized catheter each time he requires to empty the bladder.

### XXXVI.—GALOCTOCELE.

**Definition.**—A cystic tumour, containing milk, which occasionally forms in the breast during lactation.

**Cause.**—Milk tumour is said to arise from an obstruction or rupture of a milk duct, by which the milk is retained in the breast.

**Symptoms.**—Beyond the presence of a painless fluctuating tumour in the substance of the mammary gland, this affection gives rise to no particular symptom. There is scarcely any pain, and no constitutional disturbance, as in abscess.

**Treatment.**—Free incision to evacuate contents, and the usual after treatment to ensure healing by granulation from the bottom.

### XXXVII.—GANGLION.

**Definition.**—A ganglion is a tumour situate in the course of a tendon which takes its origin from its sheath, and which usually consists of a sac containing clear, viscid, synovial fluid.

**Varieties.**—Ganglion occurs in two forms:—

(a) *Encysted.*

(b) *Diffused or compound.*

In the *encysted* variety the swelling is globular, generally hard, and, if of great size, translucent. Sometimes the swelling is soft and fluctuating. The sac is derived from the synovial membrane of the



sheath which is protruded through an opening in the sheath itself. Its most frequent situation is on the dorsal aspect of the wrist, in the course of one or other of the tendons. Similar tumours may occur in connection with the flexor tendons.

In the *diffused* variety the swelling is irregular, with no defined outline, and deep-seated in the course of the tendon. Sometimes several tendons are involved, and when this occurs in the hand, the extensive and diffused swelling causes much deformity. This form often affects the flexor tendons of the hand and wrist. In addition to synovial fluid, the diffused ganglion usually contains a number of small deposits, resembling melon-seeds, and which are commonly known as 'melon-seed bodies.'

**Causes.**—The most frequent—if not invariable—cause of ganglion is strain or twist of the tendons, and is very common in women who are much engaged in washing and wringing clothes. Pressure, friction, and rheumatism are also given as causes.

**Treatment.**—The simplest cure in the case of *encysted* ganglion is to rupture the sac by firm pressure with one or both thumbs. The fluid contents then escape into the surrounding cellular tissue, and soon become absorbed. After rupturing the ganglion, pressure by means of a pad and bandage should be applied for a few days. If pressure fails to rupture the ganglion, it may be punctured with a grooved needle or incised subcutaneously by means of a fine tenotomy knife, and the contents squeezed out. A pad and bandage should be applied for a few days with a view to prevent the sac refilling. If the tumour reappears, the same treatment may be tried again; but in obstinate cases it has been recommended to pass a seton through the sac, removing it as soon as inflam-

mation has been set up. This method is attended with some danger, as the inflammation may spread to tissues beyond. Application of iodine, blisters, and mercurial ointments have been recommended, but these are generally useless. *Diffused* ganglion requires free incision into the sheaths of the tendons, so as to permit the free exit of the contents, the hand and arm being kept on a splint for some days before and after the operation. The operation is a somewhat severe one, and attended with considerable risk. Not only may the subsequent inflammation permanently impair the use of the limb, but it is said life may be endangered. These risks should be explained to the patient before operating.

### XXXVIII.—GANGRENE, MORTIFICATION OR SPHACELUS.

**Definition.**—The terms gangrene, mortification, and sphacelus are generally used indiscriminately to signify the death of any part of the body either as a consequence of accident or disease. Strictly speaking, the term gangrene should be used only in the case of the soft tissues, and when the process of mortification is still going on but not actually completed. When the part is dead it is said to be in a state of sphacelus. In the soft tissues, the dead, or mortified portions, are called ‘sloughs.’ In the case of death of bone, the process is called ‘necrosis,’ and the dead portion is called a ‘sequestrum.’

**Causes.**—Mechanical or chemical violence; constriction and strangulation of a part, as seen in strangulated hernia; cutting off the blood supply, as in wound, ligature, embolism, or disease of the arteries; arrest of venous circulation; spontaneous idiopathic

inflammation, as in carbuncle ; excessive cold ; constitutional disease, as in scurvy and syphilis ; privation, and improper food. In countries where rye is a common article of diet, gangrene of the extremities takes place from eating diseased or 'spurred' rye.'

**Varieties.**—There are three chief varieties of gangrene, viz. :—(a) *Traumatic*, when arising from mechanical or chemical injury ; (b) *Anæmic* (including senile gangrene), when a consequence of cutting off the arterial blood supply ; and (c) *Static*, when due to arrest of the venous circulation. The terms 'moist' and 'dry gangrene' are used, but these refer to the local condition of the part during the process, the parts being either moist or dry according as to whether the blood supply is cut off or not.

**Symptoms, Course, etc.** — The symptoms and course of gangrene vary according to the cause. Hence each variety must be considered separately.

(a) *Traumatic Gangrene.* — Traumatic gangrene may be *direct* or *indirect*. In the former the vitality of the tissue is destroyed at once, as is seen in cases where strong corrosive acids or caustics are applied to the skin. In the latter, the death of the part is preceded by, and is consequent on, inflammatory action. A typical example of indirect inflammatory gangrene is seen in some cases of bad compound fracture. In such cases the limb swells rapidly, the skin becomes mottled and livid, phlyctenæ or bullæ, containing blood-stained serum, form on its surface, and on being pressed with the finger, crepitation from the generation of gas can often be distinguished. The temperature of the limb falls considerably, and it loses sensation. In

this form there is a strong tendency for the gangrene to spread upwards, and often amputation of the limb must be performed in order to save life, but occasionally the gangrenous action stops just beyond the limits of the injury. When this takes place a vascular line, called 'the line of demarcation,' appears at the point where the dead and living tissues meet. The vascular line soon ulcerates, and the soft parts on the diseased side separate, by the process of sloughing, from the living tissues, and finally, unless otherwise dealt with, the diseased bone becomes separated also. The progress of the disease is accompanied by an extremely foetid smell, and before separation the limb becomes quite black and decomposed. The separation of a limb from gangrene is seldom accompanied by hæmorrhage

- (b) *Anæmic Gangrene*.—Under this head are included all cases where gangrene results as a consequence of the part being deprived of its usual supply of blood, whether the original cause be accident or disease. Examples of this are sometimes seen in cases where the main artery of a limb has been ligatured or severed by accident, or where it has been plugged by an embolic clot, and collateral circulation has not been able to establish itself. In these cases the gangrene generally assumes the 'dry' form. The part beyond the seat of arterial obstruction becomes at first cold and bloodless, and has a waxy appearance; afterwards it withers, changes to a black colour, and before drop-



ping off becomes mummified. *Senile Gangrene* results from the blood supply of the part being cut off, and the process is the same, but more gradual in its action; but here the primary cause is atheromatous disease of the arteries. Gangrene from excessive cold ('frost-bite'), and from the use of ergot of rye, is of the 'anæmic' variety, and runs the same course as that caused by direct arterial obstruction.

- (c) *Static gangrene*.—This variety of gangrene results from obstruction to the venous circulation, and as the part is overcharged with blood, the gangrene assumes the moist form. Examples of this are seen in strangulated hernia, constriction of a limb from tight and prolonged bandaging; the prolonged application of a tourniquet to check hæmorrhage; pressure of tumours on the large venous trunks: and stasis of blood, in the case of aged persons suffering from obstructive heart disease.

The constitutional symptoms vary according to the age of the patient and the form of gangrene. In senile gangrene and chronic cases the constitutional disturbance may be very slight, but in traumatic gangrene there is extreme depression of the system, and the patient often rapidly sinks from exhaustion. In these cases, before gangrene sets in, and during the inflammatory stage, there is much fever and excitement, the pulse being rapid and full, and the temperature from 103 to 105 degrees, but just as the gangrenous action commences, the temperature falls suddenly 4 or 5 degrees, or perhaps more, and the pulse becomes feeble and intermittent.

**Treatment.**—This depends upon the cause ; but in all cases it is necessary to support the patient with a liberal diet, and stimulants are generally required. If there is any pain, it should be relieved by means of chloral or morphia. In traumatic gangrene, if of limited extent, attention should chiefly be directed to keeping the parts perfectly clean, and to promoting the early separation of the sloughs by means of warm poultices made with equal parts of linseed-meal and charcoal, or irrigation with warm water, to which a small quantity of some antiseptic fluid has been added. The slough having been detached, the ulcerated surface is to be treated in the ordinary manner. If the gangrene is extensive, and it is a part which may be removed, amputation should be performed, but no more of the limb should be removed than is absolutely necessary. Sometimes, as in bad compound fractures, amputation should be performed as soon as inflammatory action has set in, and before gangrene declares itself. When gangrene is spreading rapidly from general causes, it is useless to amputate, as the disease attacks the stump, but if it is merely spreading from local causes, amputation is generally successful. In anæmic gangrene little can be done beyond endeavouring to prevent its extension until after the line of demarcation has begun to slough, when in the case of a limb amputation may be performed, of course removing as little as possible. Until the parts are ready for the operation, the limb should be kept warm and clean. As an application, lint, saturated with carbolized oil, is, perhaps the best, and the whole limb should be surrounded with cotton-wool. Opium to be given in case of pain, and the diet to be liberal and nourishing. This treatment also applies to senile gangrene, in which operative interference, as a rule, is not advisable, but in gangrene from embolism,

or from the effects of ergot of rye, amputation may be performed as soon as the line of demarcation can be made out, if the general condition of the patient permits. In 'static gangrene' the first indication of treatment is to endeavour to remove the cause of the obstruction and restore the venous circulation. If this can be done early, the parts may be saved, but if the gangrene is progressive in spite of treatment, it is unwise to delay operative measures.

### XXXIX.—GLANDERS OR EQUINIA.

**Definition.**—A specific contagious disease, originating in the horse, mule, or ass, and communicable to man, the chief manifestations of which are profuse suppuration of the mucous membrane of the nasal cavities, pustular cutaneous eruptions, and glandular swellings.

**Varieties.**—In the horse this disease shows itself in two forms. In one the nasal mucous membrane and neighbouring glands only are affected, but in the other the disease attacks the lymphatics of the whole body, the nasal mucous membrane being unaffected at first. The latter form is generally called 'farcy.' In men the disease may assume either form, but generally the symptoms of both manifest themselves in the course of the attack.

**Causes.**—In the horse this disease may, it is believed, arise spontaneously, or from inoculation, but in man it is always produced by contagion, or through inoculation of the matter from a glandered animal, or from another person suffering from the disease; hence in man it is most commonly met with in those who are employed in stables.

**Symptoms.**—After an incubation stage, which may last from three to eight, or even fifteen days, high fever sets in, accompanied by delirium, profuse perspirations, severe pains in the head, back, and limbs, and sometimes diarrhœa. Shortly after the commencement of feverish symptoms; small red spots appear on the skin of the face, neck, and abdomen, and sometimes on the arms and legs also. This cutaneous eruption goes through all the stages of papule, vesicle, and pustule, having a hardened base, and red areola somewhat resembling the eruption of small-pox. The pustules sometimes dry up, forming dark-brown crusts, but more frequently they soften down, leaving excavated ulcers. In addition to the eruption, the subcutaneous lymphatic glands become inflamed, which can be felt as small nodules beneath the skin. These are called ‘farcy buds.’ After a time the ‘farcy buds’ soften down, forming abscesses which, after discharging their contents, leave deep indolent ulcers. Hard nodules also form, in connection with the mucous membrane of the nose, mouth, throat, and respiratory passages, the Schneiderian membrane becomes inflamed and ulcerated, giving rise to an abundant discharge, at first thin and clear, but rapidly becoming purulent, viscid, and foetid, and sometimes mixed with blood. Other complications which may occur, are, œdema and erysipelas of the head and face; large bullæ on the face, trunk, and other parts of the body, leading to gangrene; diffused abscesses of the large joints; tubercular deposits in the internal organs; and pneumonia. The above apply to the *acute* form of the disease, but, rarely, it assumes a *chronic* form, when the symptoms are much less virulent. In *farcy*, which may be either acute or chronic, the mucous surfaces of the nose, pharynx, etc., are not implicated, and, in some cases, there is no pustular eruption; the chief manifestation being inflam-



mation of the lymphatic vessels and glands ; but it occasionally happens that a mild case of farcy terminates in acute glanders.

**Prognosis.**—With such a train of symptoms it is only to be expected that this disease should be extremely fatal. Recovery rarely takes place, except in mild and chronic cases. In acute cases death may take place in a few days, but as a rule the disease lasts for three or four weeks. Death takes place from exhaustion ; coma, and low delirium ushering in the closing scene.

**Treatment.**—Attention should be chiefly directed to keeping up the patient's strength, by means of a liberal supply of nourishment, stimulants, and tonic medicines. Abscesses are to be opened as soon as matter has formed ; all discharging surfaces are to be treated antiseptically, and the nasal cavities well syringed with lotion containing creosote or carbolic acid. Mercury and iodide of potassium are said to have effected cures.

## XL.—EQUINIA MITIS.

This is a disease which attacks the hands and other parts of the body of those who have the care of horses affected with 'grease ;' being propagated by inoculation. The chief manifestation is a crop of pustules, which, when mature, closely resemble those of vaccinia, but are rather larger. There is very little constitutional disturbance, and no treatment beyond an occasional aperient is necessary, as the eruption runs a regular course, and dries up about the tenth or twelfth day, forming a scab, which falls off, leaving a cicatrix.

## XLI.—GLOSSITIS.

**Definition.**—An inflammatory condition of the tongue, characterised by great swelling and pain.

**Causes.**—The most frequent cause is salivation, but at times it is impossible to trace the cause. Wounds and local irritation may cause inflammation of the tongue, and it may arise from cold in persons who have carious teeth.

**Symptoms.**—Pain and inability to move the tongue, which rapidly swells, sometimes to such an extent as to entirely fill the mouth, preventing speech and deglutition. In extreme cases the patient may die from suffocation. The inflammation may subside under treatment, but occasionally it ends in suppuration.

**Treatment.**—Saline purgatives should be freely given at first, followed by tonics. Locally, fomentations or astringent gargles should be tried, but if these fail to give relief, leeches may be applied or free vertical incisions or punctures made. If an abscess forms, it should be opened as soon as possible.

## XLII.—GONORRHOEA, OR CLAP.

**Definition.**—A disease of the genital organs, in which the chief symptom is inflammation of the mucous membrane of the urethra in the male, and the vagina or vagina and urethra in the female, accompanied by a discharge of purulent or muco-purulent matter.

**Causes.**—Usually arises from having connection with a person suffering from the disease, the discharge, when purulent, being highly contagious; but in the

male, inflammation of the urethra (urethritis) with discharge may result from the irritation caused by the passage of an instrument into the bladder, and in some men a mild form of gonorrhœa follows excessive sexual intercourse, or after connection with a woman during her catamenial period, or one suffering from leucorrhœa.

**Symptoms.**—*In the male.*—At first there is slight itching at the orifice of the urethra, which is redder than usual, and there is smarting or sensation of heat on micturition. Shortly after the onset of these symptoms a minute quantity of thin muco-purulent fluid may be squeezed from the urethra. If the disease is not checked, acute inflammatory symptoms come on in a few days. The urethra becomes intensely inflamed, the discharge very abundant and thick, and of a yellow or greenish-yellow colour, sometimes streaked with blood. Micturition is difficult, there being much pain and scalding, and there is frequent desire to pass urine. In consequence of the inflammation the penis swells, especially the glans, which becomes very red and exquisitely painful. During the acute stage there is much aching and tenderness of the neighbouring parts, the groins, perineum, testicles, shooting-pains down the thighs, etc., and the patient is much disturbed at night with painful erections (chordee). *In the female.*—As in the male, the first symptoms are heat, pain, and swelling of the affected parts. The inflammation may affect the external parts only, viz., the labia, nymphæ, meatus urinarius and surrounding mucous membrane, a condition termed *vulvitis*, or it may extend to the mucous membrane of the vagina, and even to the canal of the cervix uteri. There is profuse thick yellow discharge, which is some-

times foetid, and there is much pain in walking, and micturition is frequent and painful.

**Diagnosis.**—There is no certain means of distinguishing the discharge of gonorrhœa from discharges that may arise from other causes. Gouty and rheumatic subjects often have a slight discharge from the urethra, which may not be of venereal origin, and those who are the subjects of stricture get mild attacks of urethritis, resembling gonorrhœa, after hard drinking and excessive venery. In women it is not at all uncommon to meet with cases of vaginal discharge of muco-purulent matter, in which no suspicion of venereal origin can be entertained. Constitutional debility, urinary disorders, and neglect of the ordinary rules of cleanliness, may give rise to vaginal discharge, and in little girls, and even in infants, cases of discharge of yellow purulent matter from the vagina are not at all unfrequent. These cases generally occur in children who are neglected, or dirty in their habits, or who are strumous, and it is believed that ascarides give rise to local irritation which may result in vaginal discharge, especially if the children are not properly attended to as regards bathing, etc.

**Complications.**—It is rarely that an attack of gonorrhœa runs its course without giving rise to some complication. The most frequent are—(a) Inflammation of bladder and urinary organs generally; (b) Prostatitis; (c) Epididymitis and orchitis in the male, and ovaritis in the female; (d) Penile abscesses; (e) Urethral hæmorrhage, due to rupture of small vessels during violent chordee; (f) Sympathetic bubo (*vide* Aid XVII.); (g) Balanitis (*vide* Aid XV.); (h) Phimosis and paraphimosis; and (i) Gonorrhœal rheumatism (*vide* Aid XLIV.). Most of these compli-



cations will be further considered under their respective headings.

**Sequelæ.**—In men, long standing and severe attacks of gonorrhœa often give rise to stricture of the urethra, and chronic gleet is a frequent consequence, especially in neglected or badly treated cases. Warty growths from the mucous surfaces of the genitals, as a sequel of gonorrhœa, are common in both sexes.

**Treatment.**—*In the male.*—If the patient is seen at the onset of the disease, before inflammatory symptoms have set in, a gonorrhœa may often be cut short by the frequent injection into the urethra of a weak solution of tannic acid, sulphate of zinc, or alum (2 or 3 grains to the ounce). Strong injections do more harm than good. Injection of nitrate of silver solution is a dangerous remedy, although sometimes it cures immediately. If there is much inflammation or swelling, injections must not be used. The patient should rest as much as possible, take light diet, and copious diluent drinks; avoid all stimulants, and bathe the parts with warm water. By way of medicine, saline aperients will be found to answer best in most cases. A good mixture is the *Mistura Alba* of the hospitals, with about 10 or 15 grain doses of bicarbonate of potash, and half-a-drachm doses of tincture of henbane. Often no other form of medicine is required. Oil of sandalwood is highly recommended in doses varying from 20 to 30 or 40 drops, and in some cases it acts like a charm. Copaiba and cubebs are much used, especially by quacks and amateur doctors, but they are disgusting drugs to take, and are rarely necessary. In some persons copaiba gives rise to a form of urticaria. Complications must be treated as they arise. In inflammation

of the bladder, rest in the horizontal position, hot baths, and alkalies with henbane or opiates are necessary; in prostatitis, hot baths, leeches to the perineum, and opiates; catheter to be used if there is retention of urine. In epididymitis and orchitis, prescribe rest and fomentations, or leeches; or, in orchitis, the testicle may be punctured with a fine-pointed bistoury, if the patient is quite willing to accept the consequences; internally, saline purgatives should be freely given, and opiates to relieve pain and procure sleep. Urethral hæmorrhage may be checked by means of pressure or application of cold. Chordee may be relieved by means of full doses of opium, or extract of henbane, combined with camphor, and cold should be applied to the penis during the erections. With a view to preventing erections from occurring, the penis may be smeared with equal parts of extract of belladonna and mercurial ointment. Further details as to treatment of complications will be found under the respective headings. *In the female.*—Gonorrhœa is much more readily cured in the female than in the male. In the acute stage, saline aperients should be given, and hot fomentations of decoction of poppy heads used frequently, or hot baths. In the chronic stage, the discharge soon ceases under the use of tannic acid, or sulphate of zinc injections.

### XLIII.—GLEET.

This affection is characterised by a thin discharge of muco-purulent matter from the urethra, and usually occurs as a consequence of severe gonorrhœa. Sometimes it occurs in persons who have stricture of the urethra, and occasionally it arises from the presence of a small ulcer within the urethra. By way of treat-

ment, the injection of weak solutions of tannic acid, or sulphate of zinc, gives the best results. The patient should be cautioned not to indulge too freely in stimulating drinks, and to avoid, as far as possible, all sexual excitement. If the patient is out of health generally, he should take the tincture of perchloride of iron. If there is a stricture of the urethra, it must be dilated before a cure can be effected; and if due to an ulcer, this must be treated with caustic, introduced on a catheter or bougie.

#### XLIV.—GONORRHŒAL RHEUMATISM.

**Definition.**—An affection characterised by rheumatic pains and swelling of the joints occurring during or immediately after an attack of gonorrhœa.

**Symptoms.**—As in ordinary rheumatism, pain and swelling of the joints are the chief symptoms; but the constitutional disturbance is generally much less. The knee and ankle-joints are the most frequent seats of the affection, although the elbow and shoulder-joints may also be attacked. Often it commences in the heel and sole of the feet when the pain is very acute, but at times only the muscles and their tendons are affected.

**Treatment.**—Hot fomentations locally when in the acute stage, and the internal administration of alkalies and opium. The bowels to be kept freely open with saline aperients. In the chronic stage, iodine and bromide of potassium combined with tonics are the most reliable remedies.

## XLV.—HÆMATOCELE.

**Definition.**—The term hæmatocele is generally used to denote a collection of blood in the vaginal sac of the scrotum, but the same term is used to designate those rarer cases, in which there is effusion of blood into a cyst connected with the testis or the spermatic cord.

**Causes.**—Generally occurs as the immediate consequence of injury to the scrotum, but occasionally no cause can be assigned. Sometimes it arises from injury to the blood-vessels in tapping a hydrocele.

**Symptoms.**—The chief symptom is swelling of the part, and it comes on immediately or soon after the receipt of the injury. The swelling resembles that of hydrocele as regards shape, being generally pyriform. At first the tumour is soft, and fluctuation may be detected, but when the blood coagulates, its characters resemble those of a solid growth. There is some pain, which is increased on pressure. When the result of a blow, there is much discolouration of the scrotum.

**Diagnosis.**—Hæmatocele of the vaginal sac may be mistaken for hernia, or hydrocele, or solid growth of the testis. Its history, however, generally suffices to clear up the diagnosis, solid growths and hydrocele being slow in formation, whilst this generally forms rapidly after injury or a strain. Hydrocele may be known by its translucency; hæmatocele is opaque, but if in doubt, a puncture with a fine trocar will reveal the true nature of the tumour. From herniæ it may be distinguished by its having no connection with the abdominal cavity.

**Treatment.**—If a recent case, and seen soon after the receipt of the injury, the first indications of



treatment are to arrest the flow of blood and relieve pain. The patient must rest in the horizontal posture with the testicles raised, and the ice-bag, or cold lotions, to be applied to the swelling. By continuing this treatment, with the internal administration of saline purgatives, absorption of the effused blood takes place in many cases. When the blood remains fluid for a long time and absorption is not taking place, tapping may be performed, as in hydrocele. This may effect a cure, but occasionally the vaginal sac becomes refilled with blood. In chronic cases, and in cases where the clot is softening and there are signs of suppuration, a free incision should be made into the vaginal sac, or the cyst, as the case may be, and the clots turned out. The usual treatment should then be followed to promote healing of the wound by granulation. In rare cases by long continued pressure the testicle of the affected side becomes wasted. When this occurs excision has been recommended.

## XLVI. HÆMATOMA AURIS.

**Definition.**—A tumour or swelling of the ear due to effusion of blood.

**Causes.**—May be caused by injury to the ear, but many cases are idiopathic, and are due to some obscure pathological change in the structure of the ear. In these cases it has been observed that the patients have been the subjects of general paralysis or other form of insanity, but the connection is not at all clear.

**Symptoms.**—If the result of injury, the chief symptoms are pain, swelling, and discolouration, but in idiopathic hæmatoma auris the affection commences

with flushing of the auricle, associated with heat and pain. In a few hours effusion of blood takes place, generally commencing in the concha and gradually spreading over the auricle.

**Treatment.**—In many cases the application of a lead lotion is sufficient to effect a cure, but if this fails the tumour may be incised and the fluids and clots turned out, or a seton may be passed through it.

## XLVII. HÆMATURIA.

**Definition.**—An escape during micturition of blood from the urinary passages.

**Causes.**—As a rule this condition is merely a symptom of organic or constitutional disease (purpura, scurvy, malignant fever, acute Bright's disease, renal embolism, etc.), but occasionally it arises from local causes or injury. The passage of bloody urine often follows severe blows over the loins, or lower part of the body, indicating kidney mischief, or injury to the pelvis or perineum. Among local causes are ulcers and fungoid growths of the bladder, passage of renal calculi down the ureters and the presence of a calculus in the bladder or prostatic portion of urethra. Occasionally hæmaturia is caused by the administration of certain irritant drugs, such as cantharides, and turpentine in large doses.

**Treatment.**—This depends upon the cause. If arising from disease or constitutional causes, the treatment falls to the lot of the physician. In surgical cases the general treatment consists in entire rest in the horizontal position, application of ice to the loins and perineum, and over the pubes, and the internal ad-

ministration of opium, gallic acid, matico, and cold drinks. If due to the presence of calculi or foreign bodies in the bladder or urethra, these must be removed as soon as possible. If the flow of urine stops, it may be necessary to use the catheter, but in hæmaturia instruments must be used with great caution.

[END OF PART I.]

